

PULMONARY PHYSIOLOGY

**THE COUNCIL FOR TOBACCO RESEARCH - U.S.A.**

SUCCESSOR TO THE  
TOBACCO INDUSTRY RESEARCH COMMITTEE

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Application For Research Grant

#531  
Gr. #408  
Activated: 7/1/64  
Renewed: 7/1/65

Date: JANUARY 17, 1966

1. Name of Investigator: BENJAMIN BURROWS, M.D.

2. Title: Associate Professor of Medicine

3. Institution &  
Address: UNIVERSITY OF CHICAGO  
950 East 59th Street  
Chicago, Illinois 60637

4. Project or Subject: A CORRELATION OF SEVERITY OF SYMPTOMS OF CHRONIC OBSTRUCTIVE LUNG  
DISEASE WITH ENVIRONMENTAL FACTORS.

5. Detailed Plan of Procedure (Use additional pages if more space is required.)

For the past several years, we have collected daily diary information on a group of patients with chronic obstructive lung disease (the asthma-bronchitis syndrome). This information has been processed for high speed electronic computation. Detailed meteorological data, considerable air pollution information and pollen counts for two of the years has been made available to us by an agency of the City of Chicago, and this material is being processed into an electronic computer. It is planned to correlate severity of symptoms with climatic, air pollution, and pollen data.

First, the pattern of exacerbation of symptoms must be fully documented, including intercorrelation of individual symptoms, in order to properly scale each day as to severity of symptoms and identify days in which exacerbations are likely to begin.

Second, meteorological data must be reduced to daily observations. This involves such problems as averaging temperatures, determining hours of certain wind patterns, etc.

Third, certain characteristic weather patterns must be identified and scaled.

Finally, the derived information must be correlated using multiple regression techniques in order to determine which environmental factors appear most important in determining severity of symptoms.

The entire project involves extensive computation and is time consuming because of both the extent and complexity of the data. (At present, daily diary information is on approximately 15,000 and environmental data on over 53,000 IBM cards).

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6. Budget Plan:

a. Salaries (Research Asst. & Programming)	8,000
b. Expendable Supplies	200
c. Other Expenses (Travel & Computer time)	800
d. Permanent Equipment	
e. Overhead (15% of a, b, c)	1,350
Total	10,350

7. Anticipated Duration of Work: Two years

8. Facilities and Staff Available: The facilities of the Biological Sciences Computation Center with 1401 and 7094 computers plus statistical and programming consultants. Offices and laboratories of the investigator including clinical and technical personnel, physiology laboratories, desk calculator, etc.

9. Additional Requirements: As noted, the data to be analyzed has already been collected and partially processed for electronic computation. However, a great deal of work remains to be done before any meaningful interpretation of the data can be made. The major requirement is for a Research Assistant who can handle the computer programming and assist in checking and interpreting results.

10. Additional Information (Including relation of work to other projects and other sources of support):

This project is closely related to the major research effort of this investigator, namely a Public Health Service supported study on the natural history of the "emphysema-bronchitis syndrome." Equipment and support for clinical aspects of the study come from Public Health funds. The present research represents a diversion from the main project and requires additional personnel plus a small amount of ancillary support.

This research is of considerable importance, for delineating environmental factors which tend to exacerbate the "emphysema-bronchitis syndrome", one may be able to improve the therapy of this disorder and perhaps draw inferences concerning its pathogenesis.

Signature

Director of Project

Business Officer of the Institution:

M. T. Tracht, Business Administrator  
Division of Biological Sciences

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